

WHAT IS CLAIMED

1. A method of providing a tone reproduction curve relating to a first image, the tone reproduction curve defined by at least three points selected from the group consisting of an
5 original minimum color value, an original maximum color value, and a user specified control point (USCP) that represents a change in color value from an original color value in an image to a desired color value, the method comprising:

defining at least one threshold color value, the threshold color value defining a threshold
10 color value in relationship to the original minimum color value or the original maximum color value, the threshold color value defining a threshold where if the USCP lies either between an original minimum color value and its associated threshold or between an original maximum
color value and its second associated threshold, the original minimum or maximum color value associated with that threshold is conceptually moved farther from the position of the threshold
with which that original color value is associated to form a conceptual minimum color value or
15 conceptual maximum color value, and

then creating a monotonic tone reproduction curve through a) the conceptual minimum
color value or conceptual maximum color value, b) the USCP, and the original minimum color
value or original maximum color value that was not associated with the threshold.

20 2. The method of claim 1 wherein the monotonic tone reproduction curve restricts color values that may be selected for imaging from the curve to color values between the original maximum color value and the original minimum color value.

25 3. The method of claim 2 wherein the monotonic tone reproduction curve is created by selecting a first color to be corrected, selecting a second color to replace the first color, and using the first and second color to define the USCP.

4. The method of claim 1 wherein the tone reproduction curve comprises a spline curve.

30 5. The method of claim 1 wherein the tone reproduction curve comprises a cubic spline curve.

6. The method of claim 3 wherein the second color is chosen by an operator selecting a color from within the first image.

5 7. The method of claim 3 wherein the second color is chosen by an operator selecting a color from a second image.

8. The method of claim 3 wherein the second color is chosen by an operator selecting a color from a stored collection of colors.

10 9. The method of claim 3 wherein the second color is selected by an operator selecting a color from memory colors.

15 10. The method of claim 6 wherein the stored collection of colors is stored as generic named files having species sub-files of named colors listed in the generic named files.

20 11. The method of claim 7 wherein the generic named files comprise at least one generic named file selected from the group consisting of vegetation, grass, grasses, foliage, skin tones, flesh tones, trees, sky, wood, eyes, hair, fruits, vegetables, water, sun, dawn, dusk, sunrise, sunset, foods, beverages, eye colors, metals, stained glass colors, primary colors, achromatic colors, and animals.

25 12. The method of claim 1 wherein the monotonic tone reproduction curve restricts color values that may be selected for imaging from the curve to color values available from an associated image reproduction system.

13. A color correction system for correcting colors in a color image comprising:
coordinates for registering points in a first color space of at least one standard point,
the first color space having axes for specifying colors;

a second set of coordinates for registering points in a second color space of at least one standard point, the second color space having axes that include at least one coordinate for specifying color hues;

a translator to convert image data from at least one point in the first color space to
5 coordinates in the second color space;

a modifier for modifying at least hue within image data in the second color space to form corrected image data in the second color space;

a translator for transferring corrected image data in the second color space to corrected image data in the first color space.

10 14. The color device of claim 13 wherein all points are provided within a tone reproduction curve.

15 15. The color correction device of claim 10 wherein the modifier corrects hue and at least one other color component selected from lightness, chroma and saturation in the second color space.

20 16. The color correction device of claim 11 wherein the modifier corrects hue and at least two other color components selected from the group consisting of chroma, lightness and saturation in the second color space.

17. The color correction device of claim 10 wherein the first color space comprises a three-color color space.

25 18. The color correction device of claim 11 wherein the first color space comprises a three-color color space of red, green and blue.

19. A method for correcting colors in a color image comprising:

30 providing image data of points in a first color space, the first color space having axes for specifying colors;

converting image data points in the first color space into image data points in a second color space, the second color space having coordinates that include at least one coordinate for hue for specifying colors;

modifying at least hue of at least some data points within image data in the second color space to form corrected image data in the second color space;

transferring corrected image data in the second color space to the first color space as corrected data.

20. The method of claim 15 wherein the first color space defines colors in color channels.

21. The method of claim 15 wherein the first color space defines colors in color channels of red, green and blue.

22. The method of claim 15 wherein modifying at least hue comprises modifying hue and at least one other color space component selected from the group consisting of lightness and saturation.

23. The method of claim 15 wherein modifying at least hue comprises modifying hue and both lightness and saturation.

24. The method of claim 15 wherein modifying is effected by a procedure selected from the group consisting of selecting specific image color data to replace converted image data in the second color space, selecting a palette from which to select a specific color to replace converted image data in the second color space, and selecting colors from a look-up table.

25. The process of claim 15 wherein image data points in the first color space are selected for correction by application of a pointer to a representation of the image.

26. The process of claim 15 wherein upon modifying image data in the second color space, and where there is no direction given in the modification to alter saturation, a

predetermined amount of change in saturation is provided into image data in the second color space to cause a slight visual change of the image.